

2012 Military Health System CONFERENCE



Sharing Knowledge, Achieving Breakthrough Performance: The Multidrug-resistant Organism Repository and Surveillance Network (MRSN)

The MHS: Healthcare to Health

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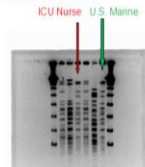
The Perfect Storm of Antibiotic Resistance in the MHS:



- Complicated, slow healing wounds
(w/ environmental contamination)

- Patient to nurse transmission

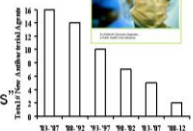
- Co-location w/ host nation patients



- Rapid transfer to numerous facilities
(4 in first 7 days)

- Frequent intra-hospital transfers
Positive pressure irrigation
Need for reconstructive surgeries

- Dry pipeline: "Bad bugs, no drugs"



MRSN

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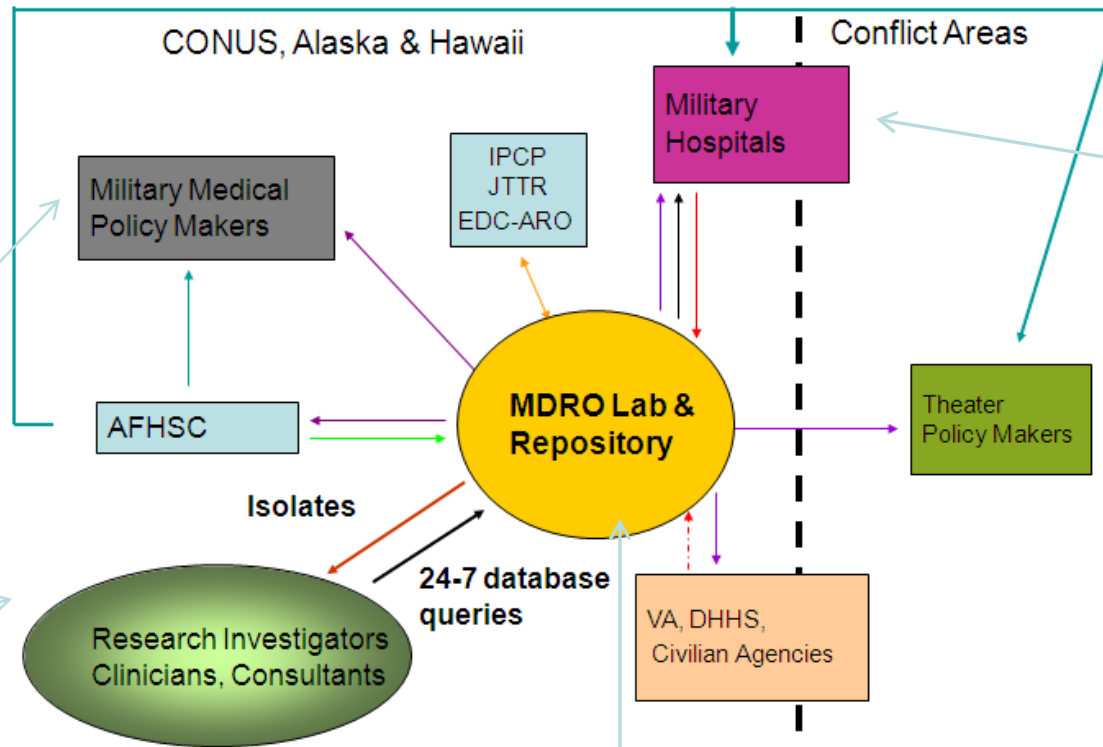
Introduction



- Antimicrobial resistance in bacterial pathogens is steadily increasing and recognized as one of the greatest threats to global public health.
- The MRSN was launched in 2009. Its mission is to collect and characterize drug resistant bacteria across the enterprise to inform and enhance infection control, empiric treatment, and related policy.

Methods:

- 1) Hospitals submit A
- 2) MRSN lab performs B
- 3) MRSN then reports C



A. INPUT:

1. *Acinetobacter*
2. *Klebsiella*
3. *Pseudomonas*
4. *E. Coli*
5. MRSA

C. OUTPUT

1. Patterns
2. Trends
3. Analyses

B. PROCESSING:

1. ID & Susceptibility x3
2. PFGE
3. Optical mapping
4. Cryopreservation

LEGEND

IPCP= Infection Prevention and control Panel
JTTR = Joint Theater Trauma Registry / Joint Trauma System

Results



- Hospitals currently enrolled: 14 (2 in AFG; 3 formerly in IRAQ)
- Total isolates collected: ~5,000; total characterized: 2,000
- Assists w/ outbreak investigations: 16
 - USNS Comfort post earthquake Haiti
 - Fatal MRSA in NICU (policy influenced; illness and death averted)
 - HAP/VAP in Afghanistan (bronchoscope)
 - Colistin resistant Acinetobacter (antibiotic restriction)
 - VRE
- Monthly reports and special bulletins generated as needed: 6
 - First report of NDM1 gene in MHS
 - First report of qacA/B gene in U.S. patient cohort
- Infection Prevention support to military working dogs (MRSA analog)
- First Place 2010 Surgeon General's Excalibur Award

Conclusions & Recommendations



- The MRSN unburdened clinical laboratories of outbreak investigations, especially those in unstable areas such as Afghanistan, Iraq, and post earthquake Haiti.
- It determined sources of outbreaks, facilitated interruption of nosocomial transmission events, influenced antibiotic restriction and surveillance policy, and was the first to report entry of resistance genes in the MHS and the US.
- Recommendations: permanently fund; expand performance improvement mandate to include Navy and Air Force